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FIRST MONTHLY LETTER REPORT - OPEN GATE STUDY

PERIOD: 27 April 1964 to 27 May 1964

Purpose of Study

The objective of this study is to determine the feasibility of a continuous film-to-film contact printer using open gate techniques and with performance compatible with current state-of-the-art. Known factors contributing to degradation of image quality in a continuous film-to-film open gate contact printer will be analyzed.

A paper study evaluation of techniques to eliminate dust from films in high-performance contact printers will be part of this survey. Recommendations based on results of the study of feasibility of various techniques will be summarized in a test plan at the end of the study.

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Personnel

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[redacted] is being performed at [redacted] by the Government Contract Engineering Group under the direction of [redacted] In addition to qualified [redacted], we are employing consultants well-versed in the fields of photography, photogrammetry, and related fields. The consulting team is composed of [redacted]

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Experimental Portion of Study

In order to accomplish the objectives of the study, we feel that we must answer three basic questions:

1. How much force is required to assure intimate film contact for optimum high-resolution contact printing?

2. What are the effects of liquids on film if used as a liquid gate?

3. What type of illumination is required to fulfill the system requirements?

We are conducting experiments in our laboratory to obtain answers for the above three basic questions. After we are satisfied with our answers, we will evaluate techniques of film contact in an open gate, liquid gates, and in addition, techniques of film cleaning for a high-performance printer.

Feasibility Study

Our study program is broken down into the following goals:

1. Literature Survey (Completion date to be June 19)

   A. Film-to-film printing techniques
   B. "Liquid Gates"
   C. Film cleaning

Our literature survey is aimed at covering state-of-the-art techniques as presented in reports, articles, and journals as well as patents pertaining to our study. We are not limiting our thinking to what has been done but are covering any proposed system or idea which may apply even in a remote sense.

The following are some examples:

A. Air bearing systems
B. Vacuum systems
C. Corona and electrostatic attraction
D. Possible adhesive systems
E. Hydraulics
F. Centrifugal force
G. Magnetic repulsion

The literature survey is followed by:

1. Literature analysis (Anticipated completion date July 1)
2. Experimentation (Anticipated completion date July 15)
3. Final data analysis (Anticipated completion date August 1)
4. Final report and test program (Anticipated completion date August 28)

Liquid gate techniques are being studied apart from the aforementioned techniques as well as possible combinations of any of the systems. In addition, we are studying dirt and dust removal from the films as a separate system.

General

We are meeting on a weekly basis with our consultants in what we may term "brain-storming" sessions and have started analyzing the literature we have at the present time and have begun experimentation on forces required to produce high-resolution second-generation prints.

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Further meetings were held with the contract monitor at the monitor's facility [redacted] on May 22.

Plans for the period: 28 May 1964 to 29 June 1964

We plan to complete the literature search and analysis next month and to begin to accrue experimental data. We also plan to begin technique evaluation based on our literature analysis and experimentation.

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